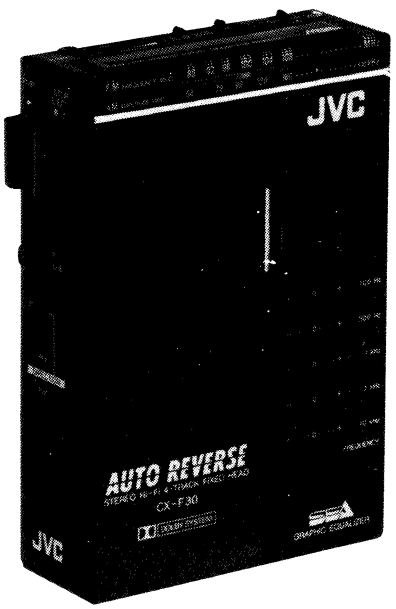
JVC

SERVICE MANUAL

STEREO RADIO CASSETTE PLAYER

CX-F30



Area Suffix

A	Australia
B	U.K.
C	Canada
E	Continental Europe
G	West Germany
J	U.S.A.
V/VX	Eastern Europe
UZ	Saudi Arabia
U	Other Areas

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No. 1754
May 1988

1 Specifications

Tuner section

Frequency range	: FM 88–108 MHz AM 540–1600 kHz
Antennas	: Headphone cord for FM Ferrite core antenna for AM

Cassette player/General section

Type	: Stereo cassette player
Track system	: 4-track 2-channel stereo
Fast wind time	: Approx. 300 sec. (C-60)
Frequency response	: 63–15,000 Hz (with metal tape) 63–14,000 Hz (with normal tape)
Output terminals	: Headphones (stereo mini plug ϕ 3.5) Matching impedance 16 Ω – 32 Ω
Power output	: 70 mW (35 mW + 35 mW) at 10% THD/ 16 Ω
Power requirements	: DC 3 V (battery x 2, size AA[R6]) Ext. DC (3 V)
Dimensions	: 83(W) x 123(H) x 38(D) mm (3-5/16" x 4-7/8" x 1-1/2") (excluding a belt clip)
Weight	: About 300 g (10.6 oz)(without batteries)

Design and specifications are subject to change without notice.

2 Removal of Main Parts

Cabinet Ass'y Section

■ **Bottom cabinet ass'y**

1. Remove two screws (2), (3) fastening the bottom cabinet. (See Fig. 1.)
2. Lift the bottom cabinet up carefully.

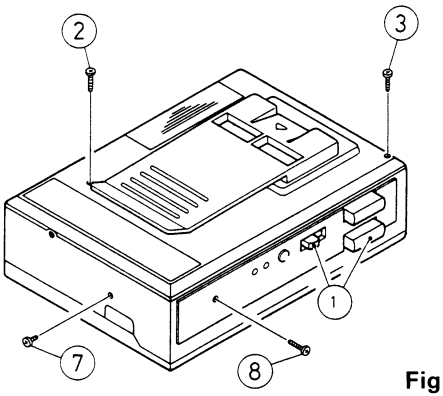


Fig. 1

■ **Main P.C. board and Mechanism ass'y**

a) Cassette lid ass'y

1. Open the cassette door. Then press the plastic tab in the direction of the arrow and lift up the cassette door. (See Fig. 2.)

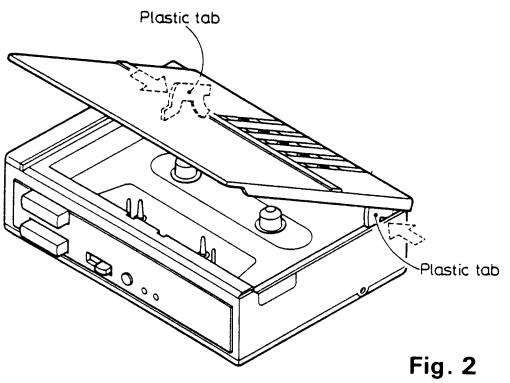


Fig. 2

b) Equalizer ass'y section

1. Remove four screws (4) from the equalizer ass'y. (See Fig. 3.)

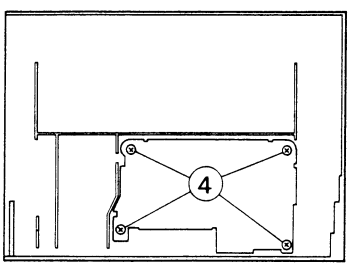


Fig. 3

c) Remove the mechanism and main P.C. board ass'y from the cabinet.

1. Use a tool (screwdriver) to take off the two knobs (1) carefully. (See Fig. 1.)
2. Remove four screws (5) and (6) fastening the inner lay. (See Fig. 4.)
3. Remove two screws (7) and (8) fastening the middle cabinet. (See Fig. 1.)
4. Remove two screws (9) fastening the middle cabinet. (See Fig. 5.)
5. Remove one screw (10) fastening the middle cabinet. (See Fig. 5.)

d) To separate P.C. board from mechanism ass'y.
Remove two screws (11) . (See Fig. 6.)

e) Antenna holder and dial holder.
Remove two screws (12) for dial holder and one screw (13) for antenna holder. (See Fig. 6.)

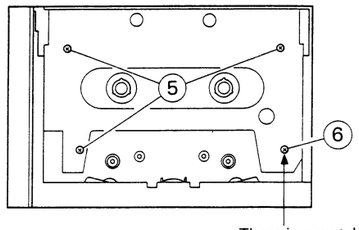


Fig. 4

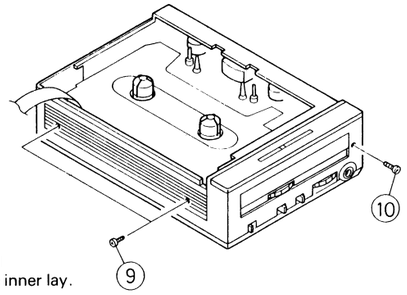


Fig. 5

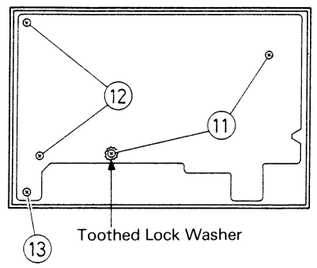


Fig. 6

3 Dial Setting

1. Set tuning capacitor to minimum. (Capacitor fully opened.)
2. Set the dial pointer as shown in Fig. 7-1.
3. Reassemble dial holder referring to Fig. 7-2.

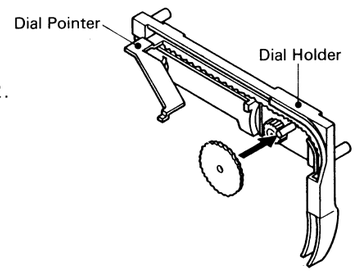


Fig. 7-1

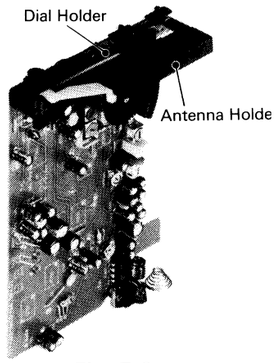


Fig. 7-2

4 Adjustment

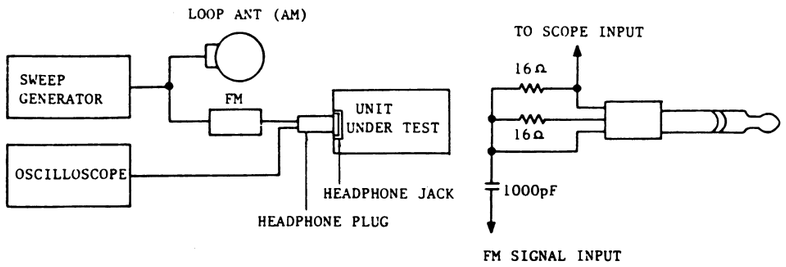


Fig. 8

Fig. 9

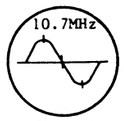


Fig. 10

■ FM Stereo Adjustment

Equipment required:
1. Frequency counter (High sensitivity)
2. FM signal generator

Note:
1. Set function switch to FM/Radio/Stereo.

Item	Signal Source	Signal Generator	Output Indicator	Dial Setting	Adjust	Adjust for —
Adjustment of	FM signal generator connected to Headphone jack	98 MHz of MOD.	Connect a frequency counter through 100 kΩ resistor to pin of IC301 and GND.	98 MHz	SFR301	76 kHz ± 50 Hz

■ AM/FM IF & RF Adjustment

Equipment required:
1. Sweeper (Sweep generator + Oscilloscope)
2. Test Attachment for Headphone jack (See Figure 8.)

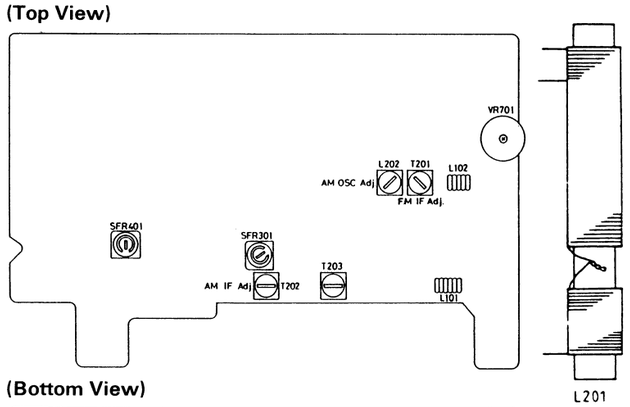
Notes:
1. Signal input must be as low as possible to avoid overload and clipping. (Use highest sensitivity of output indicator.)
2. Volume control at maximum, graphic equalizer controls at mechanical center.
3. Connect 16-ohm load across headphone jack output. (See Figure 8.)

Step	Signal Source	Marker Freq.	Output Indicator	Dial Setting	Adjust	Adjust for —
AM IF Alignment			SET FUNCTION SWITCH TO AM/RADIO.			
1	Sweep generator connected to a bar antenna	455 kHz	Oscilloscope connected to Headphone jack	Adjust AM I.F.T. T202 so that maximum and symmetrical waveform can be obtained. In this case, the wavehead should appear at the center marker (455 kHz) on the scope of sweeper. (See Figure 9.)		
2	Repeat Step 1 for optimum sensitivity.					
AM RF Alignment			SET FUNCTION SWITCH TO AM/RADIO.			
1	Connect a standard radiation to loop antenna	530 kHz	Same as above	Lowest Freq.	L202	Maximum output on oscilloscope
2		1,650 kHz		Highest Freq.	VC101-D	
3	Repeat Steps 1 and 2 as necessary to minimize tracking error.					
4	Same as above	600 kHz	Same as above	Tune for signal.	L201	Same as above
5		1,400 kHz			VC101-C	
6	Repeat Steps 4 and 5 for optimum sensitivity.					
FM IF Alignment			SET FUNCTION SWITCH TO FM/RADIO.			
1	Sweep generator connected to IC101 (See Figure 8.)	10.7 MHz	Same as above	Adjust T201, T203 so that symmetrical IF waveform may be changed to balanced "S" curve waveform. (See Figure 10.)		
2	Repeat Step 1 for optimum sensitivity.					
FM RF Alignment			SET FUNCTION SWITCH TO FM/RADIO.			
1	Connect to standard signal generator.	87.5 MHz	Same as above	Lowest Freq.	L102	Maximum output on oscilloscope
2		*109 MHz		Highest Freq.	VC101-B	
3	Repeat Steps 1 and 2 as necessary to minimize tracking error.					
4	Same as above	90 MHz	Same as above	Tune for signal.	L101	Same as above
5		106 MHz			VC101-A	
6	Repeat Steps 4 and 5 for optimum sensitivity.					

Remark: *FM HI-End Freq. Alignment to 108.3 MHz in G (West Germany)) version.

■ Adjustment Locations

(Top View)



(Bottom View)

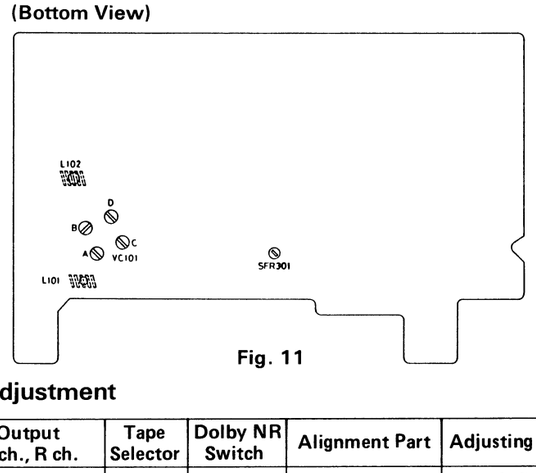


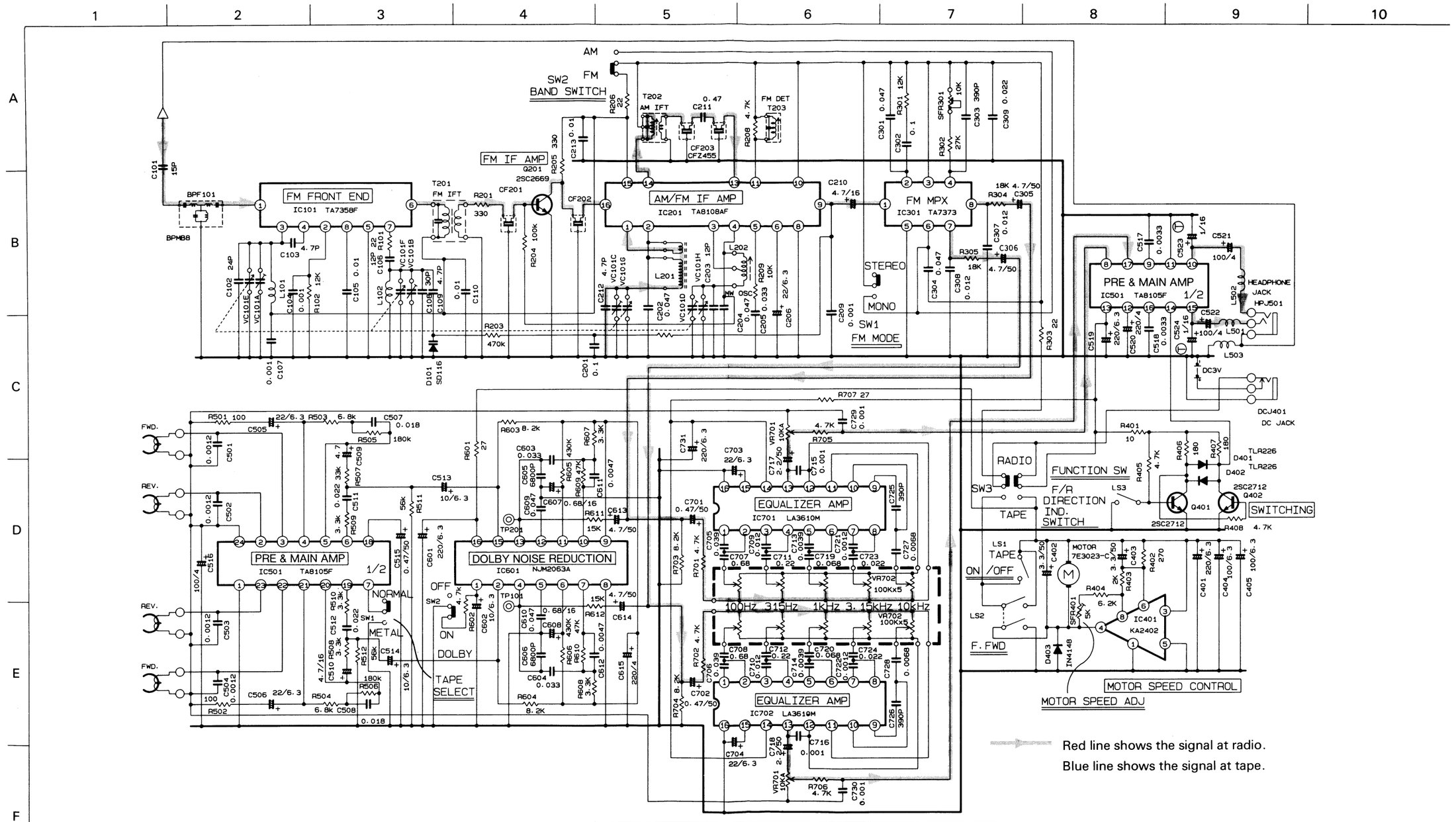
Fig. 11

■ Cassette Section Adjustment

Item	Input	Output L ch., R ch.	Tape Selector	Dolby NR Switch	Alignment Part	Adjusting & Specification	Remarks
Wow & flutter and tape speed	Test tape VTT712	Headphone	Normal	OFF	SFR401	Wow & flutter (JIS RMS) 0.35% nominal 0.5% limit tape speed 3000 Hz ± 0Hz limited 3000 Hz +3/−2%.	At tape center and end position
Head azimuth	Test tape VTT702	Headphone	Normal	OFF	Head adjustable screw	Adjust the P/B head until maximum output. Head misalignment should be less than 2 dB at forward position.	Check forward and reverse 8 kHz output difference less than 4 dB.
Power output	Test tape VTT722	Headphone	Normal	OFF	Set VR until 10% distortion is indicated on distortion meter.	SPEC. 36 mW Nominal 32 mW Limited	
Frequency response	Test tape VTT736	Headphone	Normal	OFF	Set VR until REF. output (0 dB) at 1 kHz.	SPEC. Low Freq. 125 Hz −1/−7 dB High Freq. 8 kHz +3/−3 dB	Turn tape selector from normal to metal position 8 kHz P/B level should be reduced 3.5 dB.
Channel separation	Test tape VTT752	Headphone	Normal	OFF	Set VR until REF. output (0 dB) at R ch. or L ch.	Measure the ratio between record signal and leak signal SPEC. > 35 dB	Turn tape VTT752 Track: 1. L ch. 1 kHz signal recorded 2. R ch. no signal recorded 3. R ch. 1 kHz signal recorded 4. L ch. no signal recorded

Item	Input	Output L ch., R ch.	Tape Selector	Dolby NR Switch	Alignment Part	Adjusting & Specification	Remarks
Dolby P/B signal output level	Test tape VTT727 (MTT150)	IC601 Pin 4 (TP101) Pin 13 (TP201) and GND	Normal	OFF	−	Check TP101, 201 output level to 100 mV. SPEC. 100 mV dBs +1/−1 dB	
Dolby NR effect	Record the zero level signal tape and playback (metal tape)	Headphone (16-ohm dummy load)	Normal/ metal	ON/OFF		1. Adjust the graphic equalizer to a flat freq. response. 2. P/B VTT727, adjust VR until output level to be 0.13 V 16 Ω (1 mW) on dummy load. 3. P/B blank test tape and turn NR switch to ON/OFF. Output variation should be more than 8 dB.	Make provision for NR level measuring. That instrument should be used E.V. meter with built-in CCIR/ARM filter.

5 Standard Schematic Diagram



Red line shows the signal at radio.
Blue line shows the signal at tape.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
IC101		0.7	1.4	2.5	1.4	0	2.5	2.4	2.5																
IC201	AM	1.1	1.1	1.5	1.5	0.3	0.3		0	1.0	2.5	2.6		1.1	2.6	0	1.1								
	FM															2.4									
IC301		0.2	2.5	2.6	2.8	0	2.8	0.9	0.9																
IC401		0		2.6	1.1	0	2.2		2.1																
IC501		0	1.4	1.4	1.4	1.5	0	0.7	1.4	0.6	1.3	0	2.3	2.7	1.9	1.3	0.6	1.4	0.6	0	1.5	1.4	1.4	1.4	1.4
IC601	ON	0.1	1.3		1.3	1.3	1.3	1.3	0	1.3	1.3	1.3	1.3	1.3		1.3	2.7								
	OFF	0.7																							
IC701 IC702		1.6	0.9	1.6	0.9	1.6	0.9	1.6	0.9	1.6	0.9	1.0	1.0	1.0	2.6	1.6	0								

		E	C	B
Q401	FWD	0	1.9	0
	REV	0	0	0.7
Q402	FWD	0	0	0.7
	REV	0	1.9	0

NOTE
1 VOLTAGE FOR IC401 AND IC601 ARE FOR TAPE ONLY. IC101 IS FOR FM ONLY.
2 VOLTAGE ARE MEASURED TO CHASSIS GROUND WITH A VOLTMETER NO SIGNAL AND SHOULD HOLD WITH ±1% AT RATED SUPPLY VOLTAGE.
3 THIS CIRCUIT IS A STANDARD CIRCUIT BUT IS SUBJECT TO CHANGE WITHOUT NOTICE.

Fig. 12

■ IC Block Diagram

NJM2063AM Dolby NR

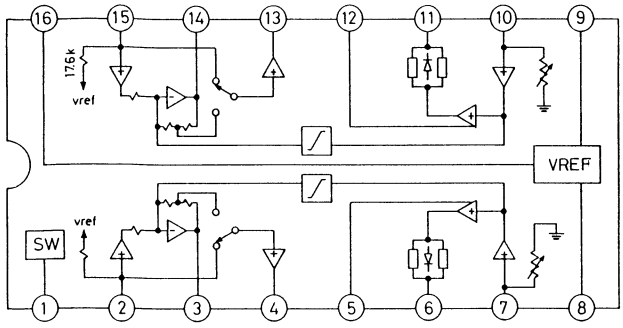


Fig. 13

LA3610M Equalizer

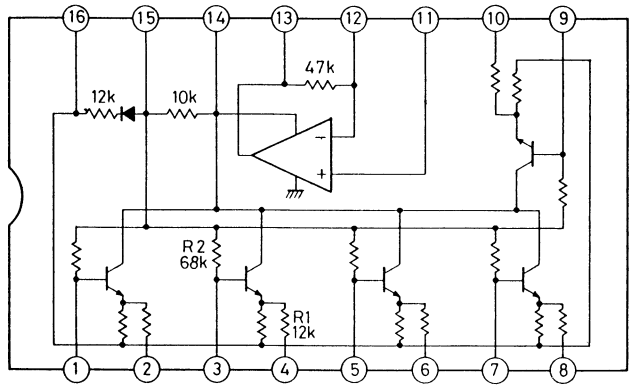


Fig. 14

TA8105F Pre & Main Amp

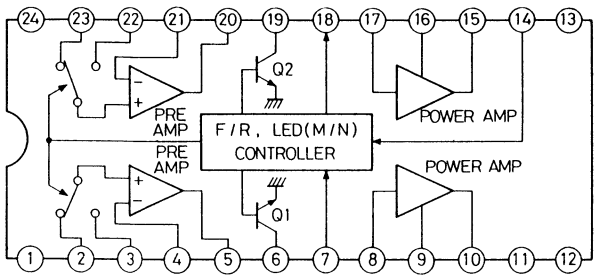


Fig. 15

KA2402 Motor Control

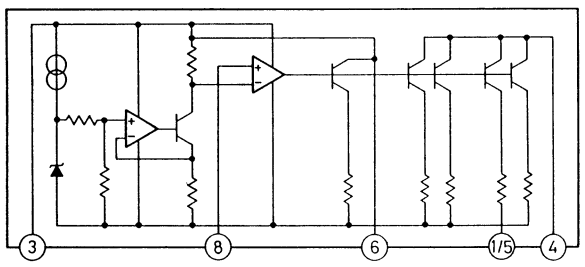


Fig. 16

TA8108AF AM/FM IF Amp

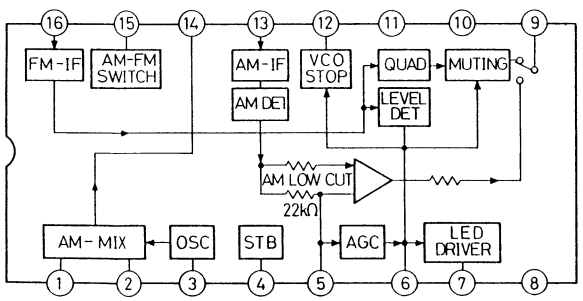


Fig. 17

TA7373F FM MPX

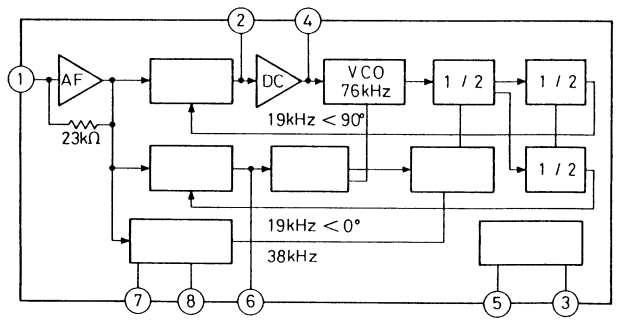


Fig. 18

TA7358P FM Front End

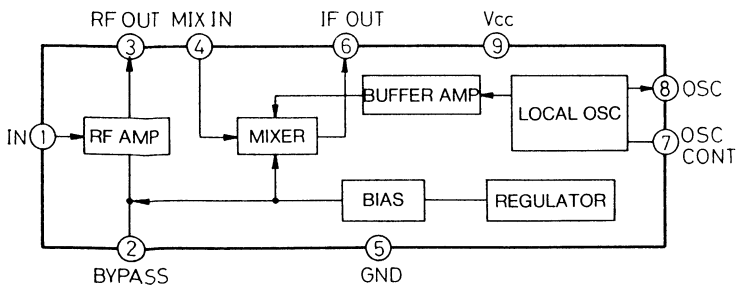


Fig. 19

6 Wiring

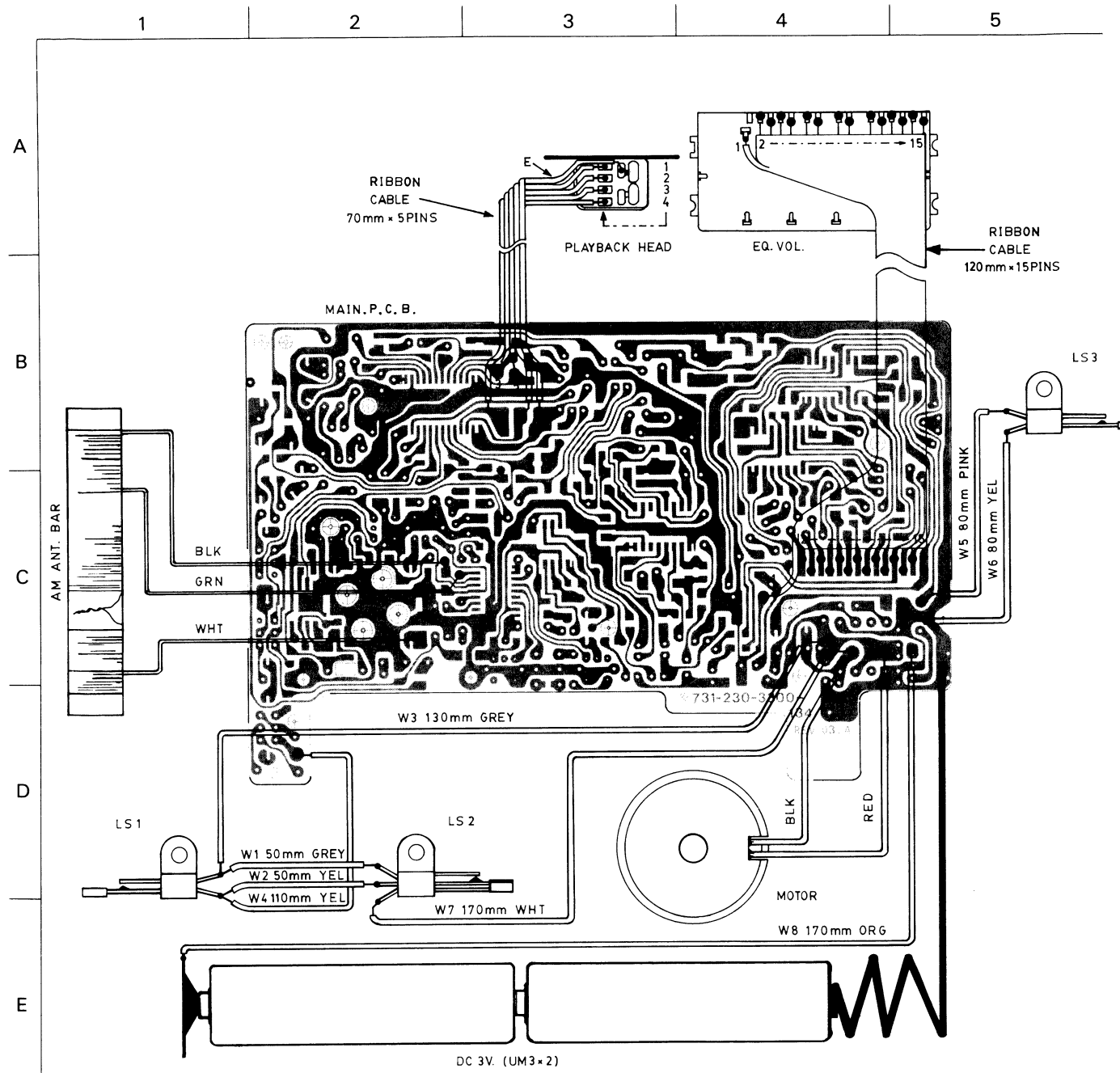


Fig. 20

7 P.C. Board Parts and Parts List

■ Top View

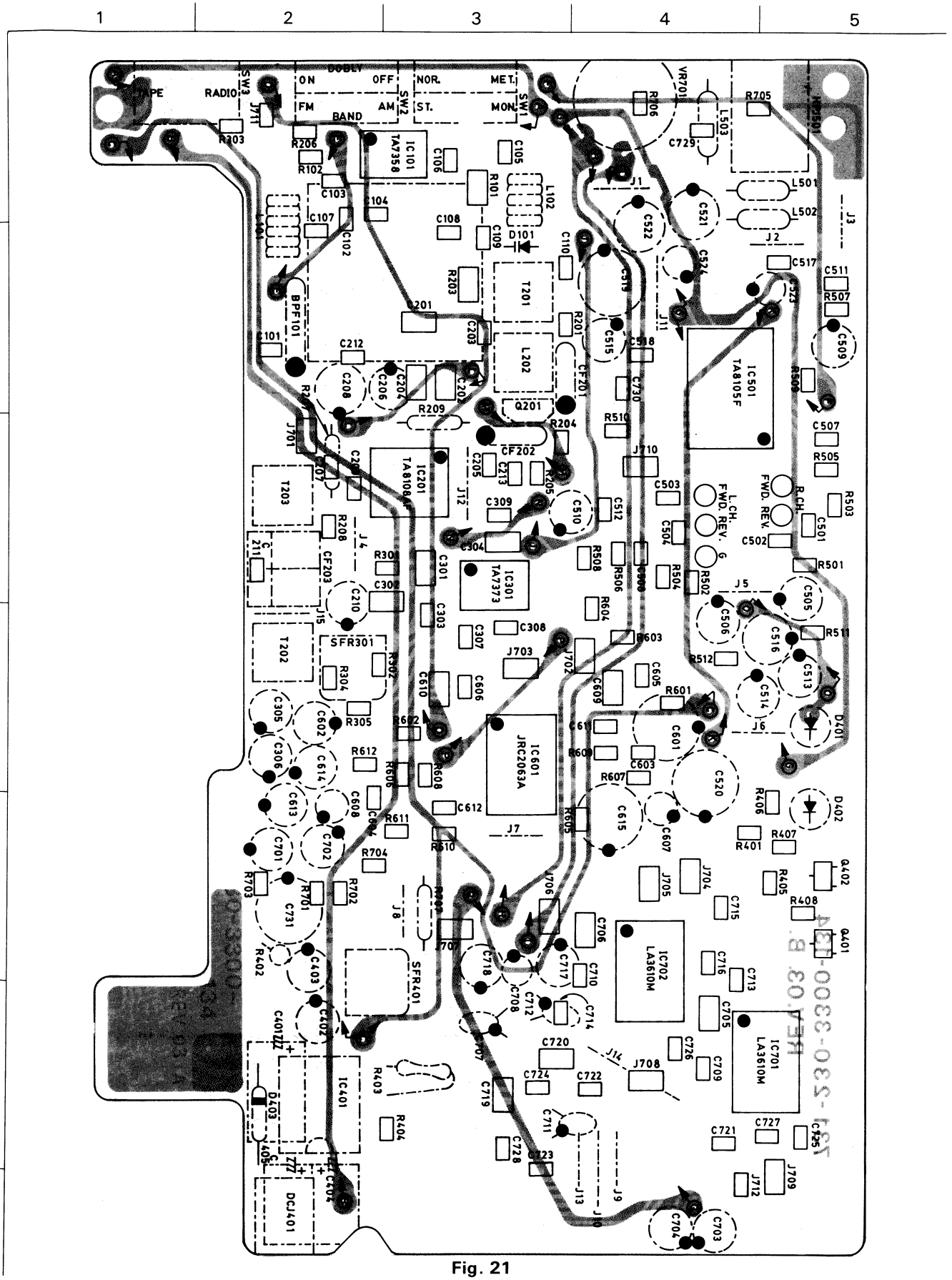


Fig. 21

■ Bottom View

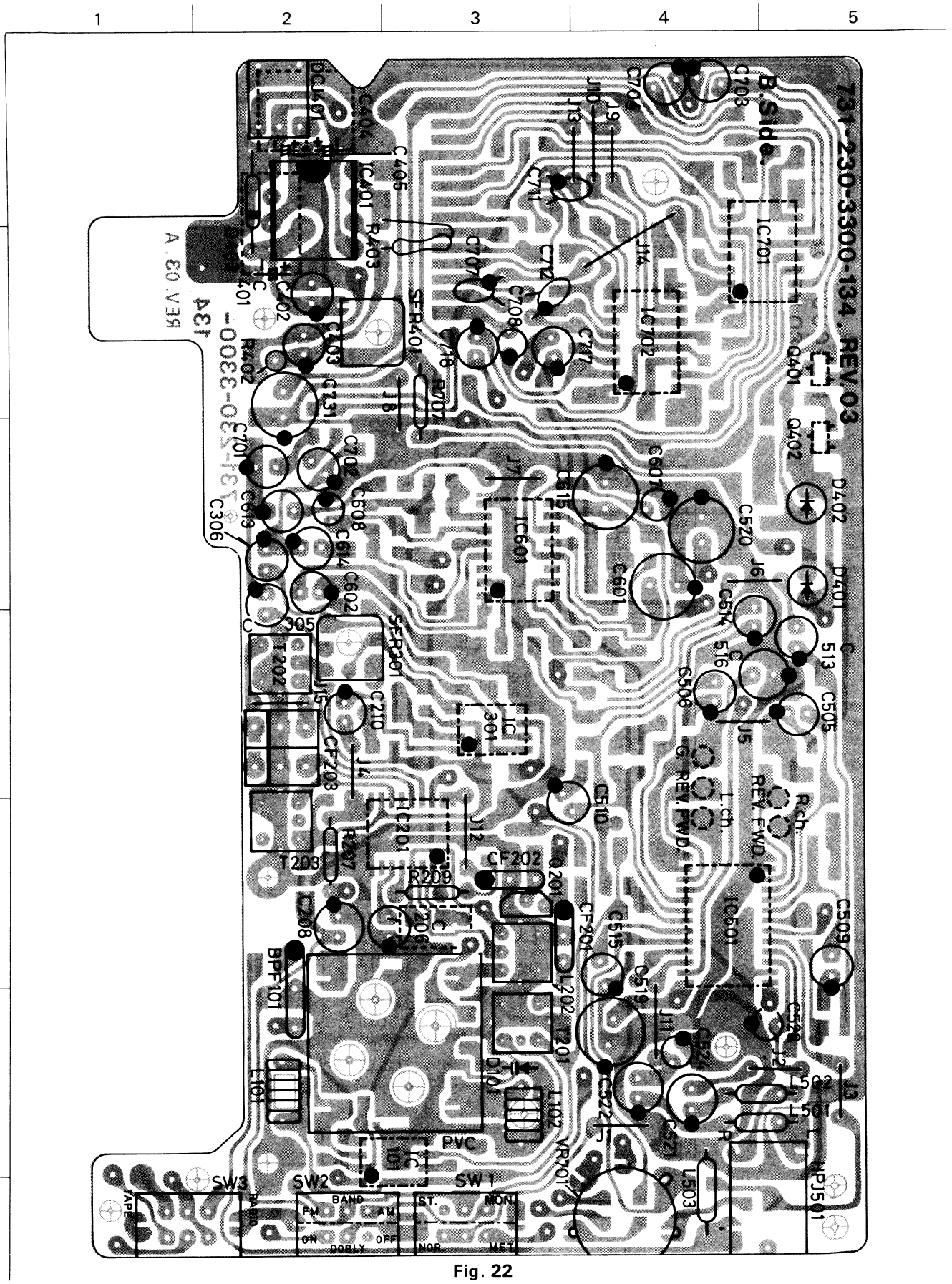


Fig. 22

P.C. Board Parts List

⚠ Parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

⚠	Ref. No.	Parts No.	Parts Name	Remarks
	IC101	TA7358F	FM RF I.C.	
	IC201	TA8108AF	IF I.C.	
	IC301	TA7373F	MPX I.C.	
	IC401	KA2402	Motor Controller I.C.	
	IC501	TA8105F	Audio Amp. I.C.	
	IC601	NJM2063AM	Dolby I.C.	
	IC701, 702	LA3610M	EQ I.C.	
	D101	SD116	Diode	
	D401, 402	TLR226	L.E.D.	Red, 2 mm dia.
	D403	IN4148	Diode	
	Q201	2SC2669O	Transistor	
	Q401, 402	2SC2712GR	Transistor	
	BPF101	751-000 000 1226C	FM Band Pass Filter	BPMB8
	CF201, 202	750-002 000 1036C	Ceramic Filter	Red
	CF203	750-001 060 2036C	Ceramic Filter	
	L101	810-007 043 0376C	FM RF Coil	
	L102	810-006 043 0376C	FM Osc. Coil	
	L201	810-000 000 1113C	AM Bar Coil Assembly	
	L202	820-000 001 0125C	MW Osc. Coil	
	T201	822-108 401 0125C	FM IFT	
	T202	821-000 001 0125C	AM IFT	
	T203	822-108 501 0125C	FM Det. Coil	
	VC101	922-000 004 1238C	AM/FM PVC	
	SFR301	981-103 100 7036C	Semi-fixed VR	
	SFR401	981-502-100 7036C	Semi-fixed VR	
	VR701	983-103 100 1089C	Variable Resistor	
	SW1–3	893-102 020 5171C	Slide Switch	
	HPJ501	678-004 000 6227C	Headphone Jack	ϕ 3.5
	DCJ401	678-002 000 8100C	DC Jack	
	L501–503	833-010 400 0215C	Inductance	
	R101	NRS181J-220	Chip Resistor	
	R102	NRS181J-123	Chip Resistor	
	R201	NRSA02J-331	Chip Resistor	
	R203	NRS181J-474	Chip Resistor	
	R204	NRSA02J-104	Chip Resistor	
	R205	NRSA02J-331	Chip Resistor	
	R206	NRSA02J-220	Chip Resistor	
	R207	QRD181J-474	Carbon Resistor	
	R208	NRSA02J-472	Chip Resistor	
	R209	QRD181J-103	Carbon Resistor	
	R301	NRSA02J-123	Chip Resistor	
	R302	NRSA02J-273	Chip Resistor	
	R303	NRSA02J-220	Chip Resistor	
	R304, 305	NRSA02J-183	Chip Resistor	
	R401	NRSA02J-100	Chip Resistor	
	R402	QRD181J-221	Carbon Resistor	
	R403	QRD181J-202	Carbon Resistor	
	R404	NRSA02J-622	Chip Resistor	
	R405	NRSA02J-472	Chip Resistor	
	R406, 407	NRSA02J-181	Chip Resistor	
	R408	NRSA02J-472	Chip Resistor	
	R501, 502	NRSA02J-101	Chip Resistor	
	R503, 504	NRSA02J-682	Chip Resistor	
	R505, 506	NRSA02J-184	Chip Resistor	
	R507–510	NRSA02J-332	Chip Resistor	
	R511, 512	NRSA02J-563	Chip Resistor	
	R601	NRSA02J-270	Chip Resistor	
	R602	NRSA02J-472	Chip Resistor	
	R603, 604	NRSA02J-822	Chip Resistor	
	R605, 606	NRSA02J-434	Chip Resistor	
	R607, 608	NRSA02J-332	Chip Resistor	
	R609, 610	NRSA02J-473	Chip Resistor	
	R611, 612	NRSA02J-153	Chip Resistor	
	R701, 702	NRSA02J-472	Chip Resistor	
	R703, 704	NRSA02J-822	Chip Resistor	
	R705, 706	NRSA02J-472	Chip Resistor	
	R707	QRD181J-270	Carbon Resistor	
	C101	NCB21EK-150	Chip Capacitor	
	C102	NCB21EK-250	Chip Capacitor	

⚠ Parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

⚠	Ref. No.	Parts No.	Parts Name	Remarks
	C103	NCB21EK-4R7	Chip Capacitor	
	C104	NCB21EK-102	Chip Capacitor	
	C105	NCB21EK-103	Chip Capacitor	
	C106	NCB21EK-120	Chip Capacitor	
	C107	NCB21EK-103	Chip Capacitor	
	C108	NCB21EK-250	Chip Capacitor	
	C109	NCB21EK-4R7	Chip Capacitor	
	C110	NCB21EK-102	Chip Capacitor	
	C201	NCB21EK-104	Chip Capacitor	
	C202	NCB21EK-4R3	Chip Capacitor	
	C203	NCB21EK-120	Chip Capacitor	
	C204	NCB21EK-4R3	Chip Capacitor	
	C205	NCB21EK-333	Chip Capacitor	
	C206	QEK40JM-226	Chip Capacitor	
	C207	NCB21EK-223	Chip Capacitor	
	C208	QER40GM-101	Electrolytic Capacitor	
	C209	NCB21EK-102	Chip Capacitor	
	C210	QER41HM-475VS	Electrolytic Capacitor	
	C211	NCB21EK-221	Chip Capacitor	
	C212	NCB21EK-4R9	Chip Capacitor	
	C213	NCB21EK-103	Chip Capacitor	
	C301	NCB21EK-473	Chip Capacitor	
	C302	NCB21EK-104	Chip Capacitor	
	C303	NCB21EK-391	Chip Capacitor	
	C304	NCB21EK-473	Chip Capacitor	
	C305, 306	QER41HM-475VS	Electrolytic Capacitor	
	C307, 308	NCB21EK-123	Chip Capacitor	
	C309	NCB21EK-223	Chip Capacitor	
	C401	QEK40JM-227	Electrolytic Capacitor	
	C402, 403	QER41HM-335VS	Electrolytic Capacitor	
	C404, 405	QEK40JM-107	Electrolytic Capacitor	
	C501–504	NCB21EK-122	Chip Capacitor	
	C505, 506	QEK40JM-226	Electrolytic Capacitor	
	C507, 508	NCB21EK-183	Chip Capacitor	
	C509, 510	QER41HM-475VS	Electrolytic Capacitor	
	C511, 512	NCB21EK-223	Chip Capacitor	
	C513, 514	QER41CM-106	Electrolytic Capacitor	
	C515	QER41HM-474VS	Electrolytic Capacitor	
	C516	QEK40GM-107VS	Electrolytic Capacitor	
	C517, 518	NCB21EK-332	Chip Capacitor	
	C519, 520	QEK40JM-227VS	Electrolytic Capacitor	
	C521, 522	QEK40GM-107VS	Electrolytic Capacitor	
	C523, 524	QEE8NAM-105	Tantalum Capacitor	
	C601	QEK40JM-227	Electrolytic Capacitor	
	C602	QER41HM-106VS	Electrolytic Capacitor	
	C603, 604	NCB21EK-333	Chip Capacitor	
	C605, 606	NCB21EK-682	Chip Capacitor	
	C607, 608	QEE8NAM-684	Tantalum Capacitor	
	C609, 610	NCB21EK-473	Chip Capacitor	
	C611, 612	NCB21EK-472	Chip Capacitor	
	C613, 614	QER41HM-475VS	Electrolytic Capacitor	
	C615	QEK40GM-227VS	Electrolytic Capacitor	
	C701, 702	QER41HM-474VS	Electrolytic Capacitor	
	C703, 704	QEK40JM-226	Electrolytic Capacitor	
	C705, 706	NCB21EK-393	Chip Capacitor	
	C707, 708	QEE8NAM-684	Tantalum Capacitor	
	C709, 710	NCB21EK-123	Chip Capacitor	
	C711, 712	QEE8NAM-224	Tantalum Capacitor	
	C713, 714	NCB21EK-392	Chip Capacitor	
	C715, 716	NCB21EK-102	Chip Capacitor	
	C717, 718	QER41HM-225VS	Electrolytic Capacitor	
	C719, 720	NCB21EK-683	Chip Capacitor	
	C721, 722	NCB21EK-122	Chip Capacitor	
	C723, 724	NCB21EK-223	Chip Capacitor	
	C725, 726	NCB21EK-391	Chip Capacitor	
	C727, 728	NCB21EK-682	Chip Capacitor	
	C729, 730	NCB21EK-102	Chip Capacitor	
	C731	QEK40JM-227	Electrolytic Capacitor	
	VR702	986-104 100 9378C	EQ. VR Assembly	

8 Exploded View of Enclosure Assembly

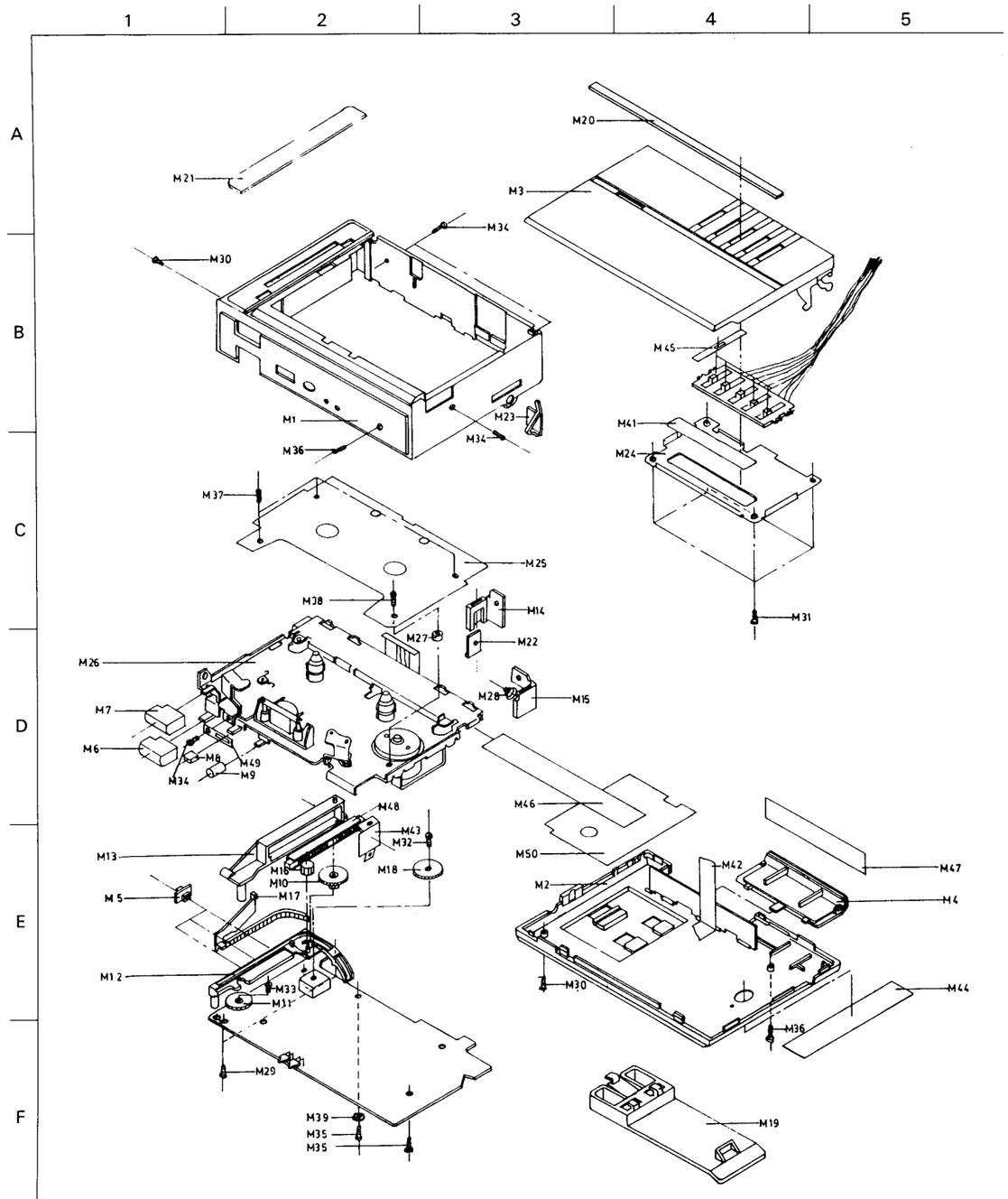


Fig. 23

Enclosure Component Parts List

⚠ Parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

⚠	Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	M1	100-023 0301 291C	Middle Cabinet	Black	1
	M2	101-023 0301 291C	Bottom Cabinet	Black	1
	M3	102-023 0301 291C	Cassette Door	Black	1
	M4	102-123 0301 291C	Battery Door	Black	1
	M5	103-423 0301 291C	Slide Knob	Black	3
	M6	103-023 0301 291C	Cassette Knob (PLAY)	Black	1
	M7	103-123 0301 291C	Cassette Knob (EJECT)	Black	1
	M8	103-223 0301 291C	Cassette Knob (FF/CUE)	Black	1
	M9	103-323 0301 291C	Cassette Knob (DIRECTION)	Black	1
	M10	104-023 0301 291C	Tuning Knob	Black	1
	M11	104-123 0301 291C	Volume Knob	Black	1
	M12	105-023 0301 291C	Dial Bracket (Holder)	Black	1
	M13	105-123 0301 291C	Antenna Bracket (Holder)	Black	1
	M14	105-223 0301 291C	Holder	Battery (+) Black	1
	M15	105-323 0301 291C	Holder	Battery (−) Black	1
	M16	108-023 0321 291C	Middle Gear		1
	M17	107-023 0391 291C	Dial Pointer		1
	M18	109-023 0321 291C	Dial Drum		1
	M19	112-023 0301 291C	Belt Clip	Black	1
	M20	106-023 0386 291C	Cassette Door Lens		1
	M21	106-123 0386 291C	Dial Lens		1
	M22	200-023 0312 000C	Battery Contact Plate	Nickel Plated	1
	M23	200-123 0304 000C	Cassette Door Ejection Plate		1
	M24	200-223 0353 000C	EQ. Mounting Plate	Nickel Plated	1
	M25	203-013 0360 245C	Deck Inlay		1
	M26	—	Cassette Deck Ass'y		1
	M27	208-313 0301 270C	Brass Stud		1
	M28	211-023 0314 000C	Battery Contact Spring	Nickel Plated	1
	M29	SPSJ2050M	Tapping Screw	2 x 5 1 PT Black (Sharp)	3
	M30	SPSJ2060M	Tapping Screw	2 x 6 1 PT Black	2
	M31	SPSJ1725M	Tapping Screw	1.7 x 2.5 1 PT Black	4
	M32	SPSK1730N	Machine Screw	M1.7 x 3 1 PT	1
	M33	SPSK1740N	Machine Screw	M1.7 x 4 1 PT	1
	M34	SPSK2030M	Machine Screw	M2 x 3 1 P/H Black	4
	M35	SPSK2040N	Machine Screw	M2 x 4 1 P/H	2
	M36	SPSK2060M	Machine Screw	M2 x 6 1 P/H Black	2
	M37	SSSK2030M	Machine Screw	M2 x 3 1 F/H Black	3
	M38	SSSK2045M	Machine Screw	M2 x 4.5 1 F/H Black	1
	M39	270-202 4506 254C	Tooth Washer	ϕ 2 Ext.	1
	M41	300-023 0301 000C	Insulation Plate	w/ Adhesive	1
	M42	300-813 0312 026C	Ribbon	9 x 60	1
	M43	300-123 0302 000C	PVC Cover	Antenna Bracket	1
	M44	203-123 0360 245C	Rating Plate	B/C/E/J Version	1
		203-223 0360 245C	Rating Plate	A/U/V/VX Version	1
		203-323 0360 245C	Rating Plate	UZ Version	1
		203-423 0360 245C	Rating Plate	G Version	1
	M45	300-113 0302 245C	EQ. Cover	0.2 thick, PVC Black	5
	M46	311-013 0302 119C	Battery Label	Aluminum Foil	1
	M47	311-023 0300 119C	Serial No. & Date Code Label		1
	M48	300-613 0300 004C	Sponge	w/ Double Side Tape 28 x 15 x 1.5 thick	1
	M49	300-113 0312 245C	Cassette Lever Cover	0.3 thick, PVC Sheet, Black	1
	M50	300-123 0332 000C	PVC Cover	Bottom Cabinet	1

9 Exploded View of Mechanism Assembly

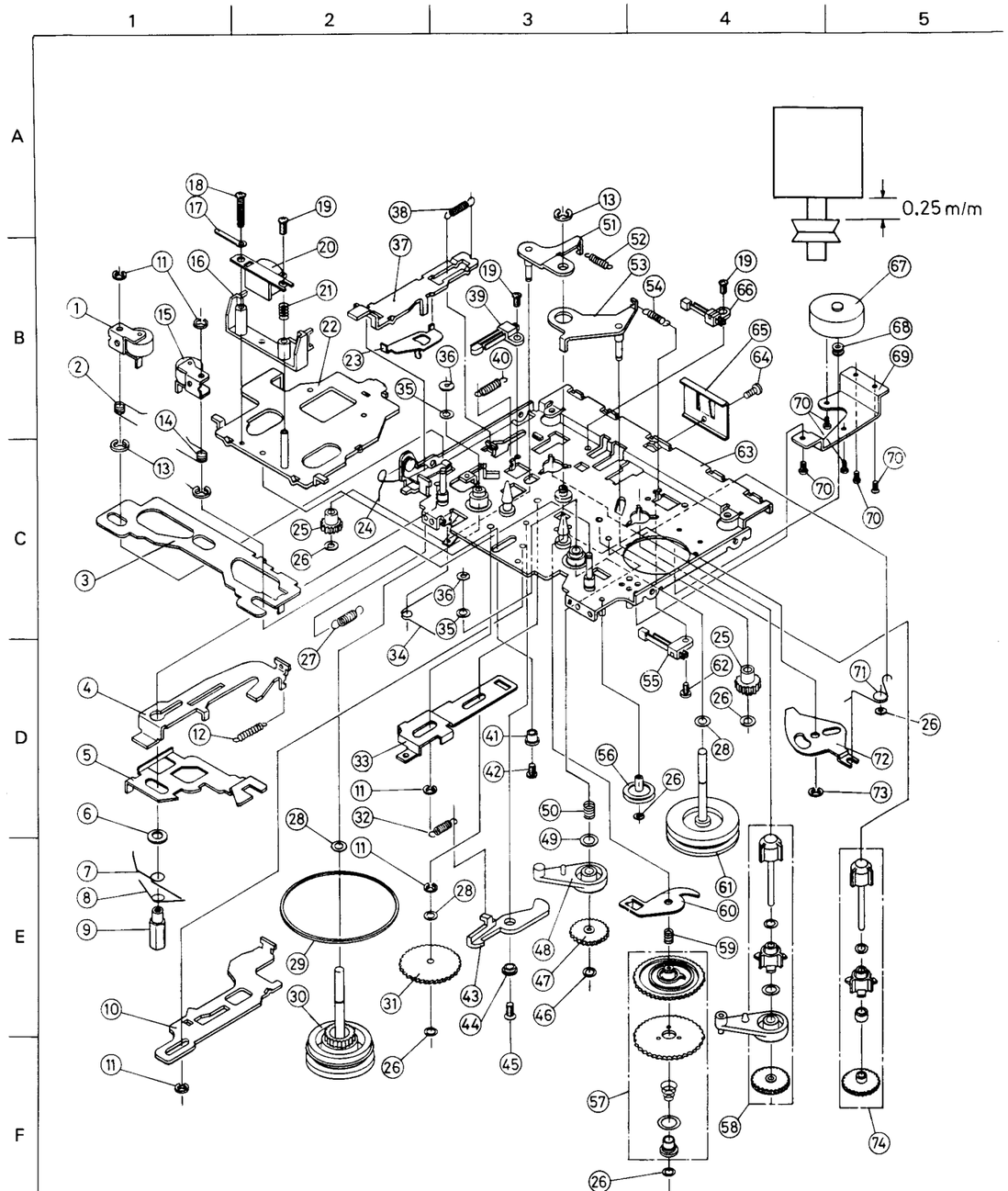


Fig. 24

Mechanism Component Parts List

⚠ Parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY
	1	207-C	R. pinch roller ass'y		1
	2	014-C	Spring	R. Pinch roller	1
	3	016-C	Pinch change lever		1
	4	029V-C	Play lever (V)		1
	5	034-C	Button lock lever		1
	6	B21-C	Metal washer	2 x 6 x 0.4	1
	7	035-C	Spring	Button lock lever	1
	8	028-C	Spring	Eject lock lever	1
	9	083V2-C	Amp. collar (V)		1
	10	043V2-C	F.R. drive lever (V)		1
	11	B10-C	E-ring	1.5ϕ	5
	12	004-C	Spring	Head chassis	1
	13	B12-C	E-ring	2.5ϕ	3
	14	012-C	Spring	F. pinch roller	1
	15	206-C	F. pinch roller ass'y		1
	16	005B-C	Head collar B		1
	17	B22-C	Cord clamp		1
	18	B08-C	Screw camera	Pan (+) M2 x 12.5	1
	19	B05-C	Screw camera	Pan tap (+) M2 x 4	3
	20	A-376-C	Reverse head		1
	21	007-C	Azimuth spring		1
	22	A02-C	Head chassis B ass'y		1
	23	027-C	Eject lock lever B		1
	24	026-C	Spring	Eject lever	1
	25	059-C	Change gear		2
	26	B13-C	P.S. cut washer	1.2 x 3.5 x 0.25	6
	27	033-C	F.F. lever spring		1
	28	B17-C	Poly slide washer	2 x 3.5 x 0.25	3
	29	075V-C	Capstan belt (V)	Square	1
	30	A18S2-C	R. capstan (V) ass'y		1
	31	051-C	Deceleration gear		1
	32	041-C	Lever spring B	Manual lock	1
	33	036-C	Manual lever		1
	34	038-C	Spring	Manual lever	1
	35	B20-C	Poly slide washer	2 x 3.5 x 0.5	2
	36	B14-C	P.S. cut washer	1.6 x 3.5 x 0.25	2
	37	022V-C	Stop lever (V)		1
	38	023-C	Spring	Stop lever	1
	39	S-3-C	F.F switch		1
	40	031V-C	Spring (V)	Play lever	1
	41	003-C	Collar	Head chassis	1
	42	B09-C	Screw camera	Pan (+) M2 x 5 with screw lock	2
	43	039-C	Manual lock lever		1
	44	040-C	Lever shaft	Manual lock	1
	45	B06-C	Screw camera	Flat (+) M1.7 x 3	1
	46	B15-C	P.S. cut washer	1.6 x 4 x 0.25	1
	47	204-C	Reed gear ass'y		1
	48	067B-C	Change sensor B		1
	49	B18-C	Poly slide washer	4.2 x 6.5 x 0.25	1

⚠ Parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY
	50	069-C	Spring	Change sensor	1
	51	A63-C	R. change gear lever ass'y		1
	52	064-C	Spring	R. change gear lever	1
	53	A61-C	F. change gear lever ass'y		1
	54	062-C	Spring	F. change gear lever	1
	55	S-2S-C	Reverse switch		1
	56	047D-C	Center pulley (S)		1
	57	201V2-C	Clutch ass'y		1
	58	203V2-C	R. reel ass'y		1
	59	086-C	Spring	Main gear	1
	60	042-C	Manual sensor lever		1
	61	A17S2-C	F. capstan (V)		1
	62	B02-C	Screw camera	Pan (+) M2 x 2.5	1
	63	A01V2-C	Mecha. chassis B ass'y		1
	64	B01-C	Screw camera	Pan (+) M2 x 1.8	1
	65	078B-C	Spring	Cassette	1
	66	S-1S-C	Main switch		1
	67	7E3023-C	Motor		
	68	074S2-C	Pulley	Motor	1
	69	091S-C	Motor holder (S) B		1
	70	B07-C	Screw camera	Pan (+) M1.7 x 2	5
	71	081-C	Spring	F.R. change lever spring	1
	72	045-C	F.R. change lever		1
	73	B11-C	E-ring	2ϕ	1
	74	202-C	F. reel ass'y		1

10 Packing and Packing Parts List

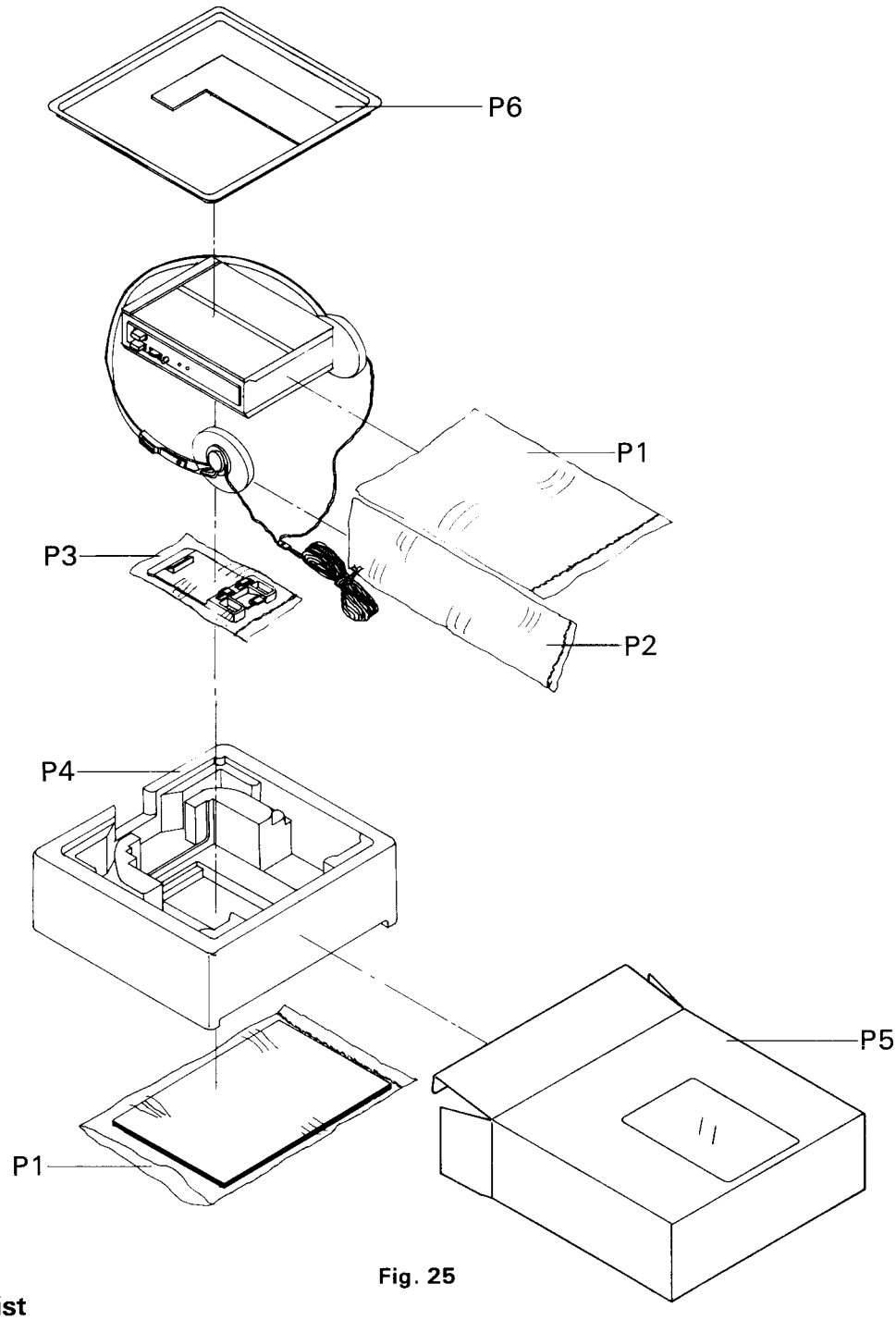


Fig. 25

Packing Parts List

⚠	Ref.	Parts No.	Parts Name	Remarks	Q'ty
	P1	310-013 0300 196C	Polybag	5" × 8"	2
	P2	310-013 0301 196C	Polybag	3" × 21" for H.P.	1
	P3	310-054 6300 000C	Polybag	for Belt Clip	1
	P4	311-423 0300 000C	Polyfoam		1
	P5	311-323 0300 000C	Gift Box		1
	P6	300-123 0312 000C	PVC Vacuum Tray		1

11 Accessories

⚠ Parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

⚠	Parts No.	Parts Name	Remarks	Q'ty
	CNN0004-721H	Instruction Manual		1
	CNN0004-721AH	Instruction Sheet		1
	BT-20098	Warranty Card	for A version	1
	BT-20027D	"	for A version	1
	BT-20060	"	for B version	1
	BT-20025J	"	for C version	1
	BT-20065A	"	for G version	1
	BT-20047C	"	for J version	1
	BT-20066	Guarantee Card	for B/G version	1
	BT-20071A	SVC Center List	for C version	1
	BT-20046C	Special Reply Card	for J version	1
	744-000 0002 233C	Headphone	KS-102L 16-ohm 20 mW	1
	E43486-340B	Safety Inst. Sheet	for B version	1